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TITLE OF THESIS THE MAN-ENVIRONMENT RELATION: A.

..... SOCIAL INDICATORS APPROACH TO

..... RESIDENTIAL SATISFACTION

DEGREE FOR WHICH THESIS WAS PRESENTED Master of Arts

YEAR THIS DEGREE GRANTED 1979

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THE UNIVERSITY OF ALBERTA

THE MAN-ENVIRONMENT RELATION: A SOCIAL INDICATORS
APPROACH TO RESIDENTIAL SATISFACTION

by



Diana K. Wu

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF ARTS

in

DEPARTMENT OF SOCIOLOGY

EDMONTON, ALBERTA

SPRING, 1979

79-13

THE UNIVERSITY OF ALBERTA
FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled the Man-Environment Relation: A Social Indicators Approach to Residential Satisfaction submitted by Diana K. Wu in partial fulfilment of the requirements for the degree of Master of Arts.

ABSTRACT

The present thesis studies three theoretical perspectives towards the problem of man-environment-relation. They are: 1. Environmental Determinism, which emphasizes a one-way cause-effect relationship between the physical environment and human well-being; 2. the Gansian Perspective, which argues for the significance of socio-demographic factors in the man-environment interface; and 3. Chapin's Perspective, which states that behavioral data on activity patterns are themselves indicators of human well-being in the urban context. To study the relevance of these perspectives, a social indicators approach is adopted to explore the issue of residential satisfaction, an aspect of the man-environment-relation.

Independent variables are selected from three types of statistics to study the three perspectives respectively. They are objective-environmental, demographic, and behavioral data, while dependent variables of dwelling and neighborhood satisfaction are tapped by subjective measures. Research findings are reported in two parts. First, by means of zero order and partial correlations, the problem of to what extent is each type of variables indicators of residential satisfaction is explored, thus, the relevance of each theoretical perspective is analyzed. While we cannot find a particular type of statistics to be prominent,

we cite that certain variables from each type of data are shown to be indicators of residential satisfaction. Thus, a multivariate view to approach the man-environment-relation is arrived at.

In the second part of our findings, multiple regression analysis is carried out to obtain an overview of the comparative strength of each theory as well as the three of them as a whole in explaining residential satisfaction. Demographic indicators are shown to explain the greatest proportion of variance in both dwelling and neighborhood satisfaction compared to objective and behavioral ones. It is then concluded that the Gansian perspective is the most viable of the three in approaching the man-environment-relation. Nevertheless, it is also emphasized that the roles of objective and behavioral indicators should not be ignored for combined together, they account for approximately the same proportion of variance explained by demographic indicators. Furthermore, the function of subjective indicators as independent variables in future studies is suggested. Therefore, the multivariate view towards the man-environment-relation is maintained.

ACKNOWLEDGEMENTS

I would like to express my appreciation to members of my committee, Dr. Leslie W. Kennedy, Dr. Earle Snider, and Dr. Denise Johnson, for valuable suggestions, advice, and insights offered to me throughout all stages of my writing of this thesis.

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CHAPTER I

INTRODUCTION

In recent years, there has been an upsurge of interest in the study of the interactions between man and the physical environment - be it the natural or the man-made environment. Since a proper theoretical conception of the man-environment relation is essential for the explanation of human behavior and well-being *vis-à-vis* the physical environment (Michelson, 1976:4), and for the planning of optimum urban environments (Moos, 1976:4), both academics and planning and design professionals have been concerned with the search for an appropriate theoretical framework for the study of the man-environment interchange. The perspectives related to this issue are diverse, representing a wide range of disciplines: geography, psychology, psychiatry, social work, sociology, architecture, and urban planning.

It is important to note that even within a particular discipline, there are diversified viewpoints of the man-environment relation. In the present study, we shall examine the various prominent perspectives towards this issue from the field of Urban Sociology: 1) the view of Environmental Determinism; 2) 'anti-deterministic' approach such as that represented by Gans; and 3) Chapin's emphasis

on solely employing information pertaining to human behavioral patterns in the study of well-being. The purpose of the present thesis is to analyze each of these theoretical perspectives in terms of their relevance in explaining individuals' perception of environmental well-being measured by subjective evaluation of residential satisfaction. A methodological technique borrowed from social indicators research is to be employed. To study the three theoretical perspectives mentioned above, we select independent variables which correspond to three types of social statistics: 1) objective variables for studying Environmental Determinism; 2) demographic variables for Gans' theory; and, 3) behavioral variables for Chapin's argument. Each of these three types of statistics are to be treated as independent factors, while the dependent variables are measured by subjective evaluation of residential satisfaction. The relevance of the perspectives can be analyzed during the course of finding indicators of residential satisfaction from each type of statistics representing each perspective. It should be noted that we are not employing any subjective variables as determinants of residential satisfaction, despite the fact that related research have reported significant correlation between subjective evaluations of other domain specific area of life and perception of residential satisfaction. (Angrist, 1974; Bradburn, 1965; Kennedy *et al.*, 1977, 1978a) As the

objective of the present thesis is to study the three theoretical perspectives mentioned above, we feel that it is adequate for us to employ objective, demographic, and behavioral statistics, respectively, to analyze the contribution of each of the perspectives to the explanation of residential satisfaction.

Organization of Thesis

In Chapter II, a literature review of the theoretical perspectives relevant to the present study will be presented. Chapter III will discuss the methodology involved in the study. Chapter IV will be divided into two parts. *PART I* reports the findings obtained from zero order and partial correlations of our independent variables with the dependent variables - satisfaction with the dwelling and with the neighborhood, with reference to the three theoretical perspectives under study. *PART II* presents the findings from multiple regressions through which we assess the three different types of independent variables, as well as the three theories as a whole, in terms of their strength of explanatory power with respect to residential satisfaction. Chapter V ends the study with a summary of findings and concluding remarks as well as suggestions of implications for future research and planning.

CHAPTER II

REVIEW OF LITERATURE

In this chapter, we shall discuss three prominent theoretical approaches to the study of human well-being *vis-à-vis* the urban man-made environment pertaining to the field of Urban Sociology, in order to lay a groundwork for our analysis in the upcoming chapters. The three theoretical perspectives are as follows: 1) Environmental Determinism, which argues a one-way cause-effect relation between the physical environment and human well-being; 2) Gans' approach to the issue of man in the urban residential context in which he denounces the effects of physical environment on human affairs, instead, emphasizes the significant roles of socio-demographic factors; and 3) Chapin's perspective which argues that data based on individuals' behavioral patterns, by themselves, are sufficient measures of well-being in an urban community. Let us now turn to discuss each of these three theoretical perspectives in more detail.

Environmental Determinism

The study of the man-environment interface has long been dominated by a deterministic approach. This perspective emphasizes a one-way cause-effect relation between the physical environment and human behavior. Through such a conception, man is seen as a passive reactor, accommodating his behavior to the objective environment. Subsequently, individual well-being is viewed as dependent upon objective conditions.

In the 1920's, sociologists such as Park, Burgess, and McKenzie initiated a new area of study - human ecology, which urged a systematic investigation into the relationship of human behavior in the context of the urban environment. (Michelson, 1976:5) Since then, however, the works of the human ecologists have come under numerous criticisms, with the major arguments claiming that aggregate data used in ecological studies cannot be inferred to the individual level (Robinson, 1961), and that the absence of a theoretical framework reduces ecology from a discipline to merely a method (Michelson, 1976:11), and that it fails even as a research technique (Hawley, 1957). It should be noted that the basic assumption underlying their research and studies has been basically deterministic. Ecologists tend to see the city as an independent variable, affecting the character of social life and organization therein. (Perin, 1970:23)

Park, Burgess, and McKenzie, in one of their pioneer works, stated that the city, 'which has arisen in response to the needs of its inhabitants, once formed, imposes itself upon them as a crude external fact, and forms them, in turn, in accordance with the design and interests which it incorporates.' (Park *et al.*, 1925:4) This is a similar deterministic notion conveyed through the well known statement by Winston Churchill: 'We shape our buildings, and afterwards our buildings shape us.' (quoted in Michelson, 1976:168)

Louis Wirth, another human ecologist, had also argued that large numbers of people would directly lead to 'relative absence of intimate personal acquaintanceship... and anonymous, superficial and transitory human relations.' Density is responsible for 'accentuated friction'. Heterogeneity breaks down rigid social structures, producing instability and insecurity. (Wirth, 1938:1) Overall, Wirth saw urbanism to be a threat to the well-being of people in cities.

Despite the criticisms, the emphasis on density, size, locational and spatial arrangements in the work of the human ecologists has inspired and influenced numerous followers in the field of urban environmental planning, among them urban social geographers, planners, and architects. (Smith, 1973:39-51; Perin, 1970:22) Similar deterministic approach can be found in the works of these urban designers. Maurice Broady, in his article 'Social Theory

in Architectural Design', describes the deterministic perspective inherent in the environment design discipline as follows:

The architect who builds a house or designs a site plan, who decides where the roads will and will not go, and who decides which directions the houses will face and how close together they will be, also is, to a large extent, deciding the pattern of social life among the people who will live in these houses. (Broadly, 1972:174)

The design profession has long been preoccupied with what behavioral response a particular physical design or environmental factor would bring about. Among these determinants, the most studied ones include density, housing type, and spatial arrangement of residential units, which are environmental factors that interest both design practitioners and academics. In order to have a fuller understanding of the deterministic approach, let us discuss some of the basic arguments of this perspective with respect to these variables in more detail.

a. Density

Interests in the empirical study of density and crowding have recently been stimulated by Calhoun's experiments in which he confined a high density population of Norway rats in a quarter acre enclosure. He observed that under such a condition, female rats fell short in their maternal functions, and the males had behavioral disturbances which ranged from 'sexual deviation to cannibalism, and from frenetic over-activity to a pathological

withdrawal from the community.' (Calhoun, 1963:41) Calhoun labelled this condition as a 'behavioral sink', and suggested the possibility that similar outcomes would appear if like conditions exist in the human society.

Many studies have since been conducted to observe whether human population density is the cause of social pathology, the 'behavioral sink' in Calhoun's conception. High density has been cited as associated with adverse psychological response such as apathy, social withdrawal, impersonal behavior, nervous tensions and mental stress. (Esser, 1972; Milgram, 1970) Others had recorded that high density directly relates to aggressive behavior, crime rates, stress and pessimism, mental illness, apathy, feelings of malcontent, problems in child rearing, and poor physical health. (Schorr, 1963; Schmid, 1960) Similarly, Galle et al. (1972) have concluded that internal density represented by persons per room is, among other types of density measures, correlated with social pathology as indicated by mortality and fertility rates, public assistance, and juvenile delinquency rates. Overall, research which support similar conclusions have argued that high density distorts social and individual well-being.

b. House type

Another environmental factor which is frequently being studied in research on community attachment or residential satisfaction is the issue of housing type.

Basically, the arguments involve the two contrasting house forms: the single detached house and the multiple-dwelling unit (including semi-detached units, the row house, and the low or high rise apartment suite).

Galle *et al.* (1972) found that building type, following internal density, was the strongest correlate of social pathology indicated by mortality and fertility ratio, public assistance rate, juvenile delinquency rate, and admissions to mental hospitals.

Fanning (1967) studied families in apartment buildings and found that there existed higher rates of mortality and neuroses among apartment dwellers than among house dwellers. Furthermore, he noted that rates of neuroses were directly related to the height of apartment building. Fanning concluded that the confinement of the residents in flats directly lead to poor health and 'social isolation', which in turn brought about psychoneurotic disorders.

Fanning's findings typify the deterministic approach to the study of man in his urban environment. Besides health and psychological illness, Fanning, like other deterministic theorists and many laymen alike, assume that multiple dwellings necessarily lead to apathy among the residents, lack of communication between families, and social withdrawal, which certainly can be threats to those who advocate and uphold the value of community attachment and neighborliness.

Although not conveying explicit deterministic

arguments, research findings have shown relationships between house type and residential well-being. Supporting Fanning's findings, Gillis (1977) found that floor level is directly related to the level of psychological strain experienced by female residents. This relationship remained significant even after control variables such as household composition, child supervision, confinement, and social isolation are introduced.

Other studies have shown that residents of multiple-family dwellings are usually less satisfied with their residential environment than single-family dwellers; this attitude holds even for those who own their particular multiple-dwelling unit. House type in itself, therefore, is shown to be significant in affecting residents' perception of satisfaction. (Homenuck, 1973; Knight and Menchik, 1974)

c. Spatial Arrangements and Distances

The spatial distribution of buildings and, in particular, the placement of windows and doors among them, has long been regarded as very influential on the social interactions of people living therein. A classic study in this area was done by Festinger et al. (1963), who studied the social interaction among residents in a postwar veterans' housing project at MIT. They found that physical distance was strongly related to friendships among residents. Besides simple physical distance, however, these researchers

observed that functional distance, or, the distance created for or maintained by a specific purpose, could also determine friendship patterns. For example, the researchers found in one of the buildings, in which stairways were the only means of connecting residents of the two floors, instead of adjacent units being closer friends, units on different floors using the same stairway were closer friends due to functional distance. These findings imply that since distance and location are the main factors initiating friendship formation, hence, they can indirectly affect the inhabitants' attitudes towards their own residential environment, particularly, their perceptions of residential satisfaction.

Gansian Perspective

Gans approaches the issue of man-environment relation quite differently from the deterministic perspective. Rather than emphasizing the role of environmental factors in affecting human behavior and well-being, Gans proposes that any correlation between environmental factors and human relationships and attitudes is necessarily due to demographic differences. In his study of Levittown, a suburban community, Gans challenges the notion of spatial determinism of friendship patterns and stresses that physical environmental factors have no direct effect on human interaction. (Gans, 1967:158) Instead, he argues that social homogeneity is the predominant factor affecting

friendship formation. In order to create friendship, people have to be socially homogeneous, or at least think themselves so. He argues that in Levittown, the reason that working class residents did not socially mix with middle class residents, even though they were neighbors in propinquity, was because there existed no perceived homogeneity between them. (Gans, 1967:170)

In his article on planning and social life, Gans (1961a) argues that by developing the site plan accordingly, the planner can affect visual contact and thereby, in a way, initiate social contacts among the inhabitants therein. However, by no means has he the ability to determine the intensity or quality of the relationship among the occupants in the site. This, Gans claims, is dependent upon the 'characteristics of the people involved.' With the premise that homogeneity leads to friendship formation, Gans is in fact suggesting that demographic characteristics are important determinants of social behavioral pattern. This, in turn, could lead to the social well-being within a community or, in other words, to the inhabitants' perception of residential satisfaction.

Gans has argued that 'since a person's beliefs and actions are shaped in part by his age, income, occupation, and the like, these characteristics can, therefore, be used as clues to understanding the pattern of social relationships.' (Gans, 1961a) He stresses that life cycle stage (which include characteristics such as age of adults,

marital status, and age of children), class (particularity represented by income and education), and race, are important indicators of behavior and social relationships such as occupational choice, child-rearing patterns, and leisure time preferences. Following Gans' train of thought therefore, we can argue that the subjective perception of residential satisfaction *vis-à-vis* the residential environment can also be affected by one's social status or stage in life cycle. Findings along the line of this theoretical assumption can be observed.

For example, in a study of high rise apartments, it is noted that married couples with children rate the lowest on a scale of residential satisfaction while the singles and the childless married couples report the highest ratings on the satisfaction scale. (Homenuck, 1973) Since style of life varies across demographic groups, faced with a particular environment, it can be expected that certain groups are likely to feel more satisfied in it than others. A particular environmental feature can be an accommodating factor to one while a constraint to another, depending on the specific life style of the individual; and it is the notion of life style that Gans has argued to be determined by the demographic characteristics of the individual. (Gans, 1961a)

Other research findings on this issue of demographic characteristics and housing satisfaction have shown, in the United States particularly, that blacks are less

satisfied with their housing than are whites; and among income groups, those with lower incomes rank lower on the satisfaction scale than upper income groups. Satisfaction with housing also increases with age and with the length of residence in one's present home. (Campbell *et al.*, 1976)

In terms of tenure, unlike what has been mentioned in the section on Environmental Determinism, there are findings which show that owners are much more satisfied with their dwelling than renters, regardless of the type of dwelling they live in. (Zehner, 1977; Campbell *et al.*, 1976)

With respect to age, Angrist found in her study of well-being in public housing facilities that livability is associated with age. Older tenants rate higher in terms of satisfaction than do the younger ones. This remains so even after length of residence is kept constant. (Angrist, 1974:514)

We learn from the above research findings that there are evidences supporting the Gansian theoretical perspective which argues for the significant roles played by socio-demographic characteristics. It is therefore worthwhile to investigate how much explanatory power demographic variables have in the perception of residential satisfaction, and to study how they compare to other types of explanatory variables such as objective-environmental conditions, or behavioral factors (which we are going to discuss in the upcoming section) in their strength of

explaining residential satisfaction.

Chapin's Theoretical Perspective

In the above two sections, we have shown that some theorists have argued for the importance of objective-environmental factors in studying residential satisfaction, while Gans, on the other hand, emphasizes the role of socio-demographic characteristics to explain individual well-being in the context of the residential environment. Here, we introduce one more contrasting view, which is held by F. Stuart Chapin Jr., who proposes that behavioral data on the activity patterns of individuals in a particular community can be treated as an index of well-being of the inhabitants therein.

Chapin has argued that since man's everyday pursuits are conditioned by his environment and vice versa, activities are then outcomes of human effort to provide for subsistence and to achieve a satisfying life. (Chapin, 1971:411) Activity patterns, then, particularly in terms of the amount of time devoted to and the diversity of discretionary (or, 'free time') activities can be treated as an index of well-being. Chapin argues that while daily activity routines of urban residents shape and are shaped by the environment, they can be viewed as a function of man's values and his motivations for satisfying his value-prescribed needs. (Chapin, 1968:12) Rather than using absolute norms of 'goodness' in studying the quality of

life within urban centres, Chapin suggests the utilization of only behavioral data to achieve a comparison of the relative 'richness of life' across metropolitan areas. Chapin here, then, is implying that the 'richer' the life of an urban centre, the residents would enjoy greater variety through more time being spent on discretionary activities. (Chapin, 1971)

Let us now bring Chapin's argument to a more micro scale. According to his train of thought, the more activity and social interactions an individual is involved in, the more satisfied he would feel towards the milieu in which he is an actor; this particular milieu can well be his own dwelling and neighborhood environment. In support of this view, Bradburn and Caplovitz (1965) found that a higher degree of social interaction and participation in one's immediate environment (such as one's community) was associated with a larger amount of satisfaction.

Similarly, Kennedy (1978) has observed that a greater extent of social contact can serve to cushion residents' dissatisfaction towards their housing unit. He cites that multiple-unit dwellers report less satisfaction with their dwelling compared to those who live in single-detached houses. However, among multiple-family residents, those who engage in a higher degree of social interaction are more satisfied with their dwelling than those who do not. Kennedy's findings suggest the crucial role of behavioral adaptation in the context of a constraining

environment.

It is interesting therefore, to study how behavioral patterns influence individuals' perception of residential satisfaction, furthermore, given particular environmental or demographic features, how does behavioral adaptation intervene in altering subjective evaluation of one's dwelling and neighborhood.

In the present study, we shall analyze these three theoretical perspectives with respect to subjective evaluation of residential satisfaction. In Chapter IV, we shall first discuss the zero order and partial correlations of explanatory variables relevant to each perspective with the dependent variables depicting residential satisfaction. In *PART II* of Chapter IV, we shall report the study of the comparative strength of the theoretical perspectives as well as the three of them as a whole in explaining residential satisfaction by means of multiple regression analysis. To select our independent variables, we borrow a methodological technique from social indicators research, studies which are similar in nature with our present endeavor. Therefore, before we go on to Chapter III for a detailed discussion on the methodology involved in the thesis, it is necessary for us to review some of the literature pertaining to social indicators research.

Social Indicators Research

In recent years, there has been a growing concern about the quality of life, or, social well-being, of individuals in a particular community. Studies related to this issue aim at exploring people's life chances, satisfactions, and expectations with respect to their social, economic, and physical surroundings. Shifting from the concern about social ills, the social well-being perspective emphasizes an orientation which seeks to measure satisfaction in the lives of individuals in a society, as well as probing any problem which might affect their state of well-being.

(Kennedy *et al.*, 1978a) This concern about the quality of life in an urban centre has led to research into the most appropriate measures, or indicators, for assessing individual well-being. Subsequently, various types of social indicators have been developed.

Bunge (1975) defines an indicator being an observable variable which is assumed to point to some other usually unobservable variable; while a social indicator is referred by him to an indicator belonging to some sociological context. Furthermore, an indicator-indicated relation can be shown by means of a statistical correlation. For a particular variable to be a social indicator, therefore, two requirements must be met. First, there exists a statistical correlation between this particular variable and the target variable which the former aims at revealing;

and second, this statistical correlation needs to be within a particular theoretical context. Without a statistical association between a variable and a particular target variable which it aims at pointing to, and without a sociological theoretical context for such a correlation to take place, the numerical value of a variable remains as merely a set of statistics.

Schneider (1976) observes that there are two types of social indicators: objective and subjective. Since the 1960's, objective indicators are most frequently used by local and state governments concerned with the quality of life of their citizens. (Schneider 1976:200) Objective indicators are 'objectively derived measures of conditions that are thought to reflect social well-being.' (Kennedy et al., 1978a:10) In a general sense, these include income, wealth, employment, health, education, crime rates, political participation, etc. Schneider argues that aggregate data as such are challengeable with respect to their usefulness in tapping individual satisfaction. He states that actual individual welfare and the quality of life actually experienced by people is a highly subjective condition. It is therefore arguable that descriptive social indicators based on aggregate data can reflect the life situation which people in a society actually go through. (Schneider, 1976:298)

Arguments such as these have, in recent years, led to the need for developing another category of indicators -

subjective social indicators, which measure not the objective conditions but the life experiences and subjective evaluations of life conditions made by individuals. Social well-being is thus measured in terms of individual happiness or satisfaction. In a general sense, subjective social indicators include measures of attitudes, expectations, aspirations, values, and preferences. They reflect individuals' feelings, reactions to life, perceptions of people, events, groups, and situations. (Angrist, 1976)

The basic rationale held by those who employ subjective social indicators is that the concept 'quality of life' should not be separated from individuals' perceptions and evaluations of their own lives. To them, a true indicator of well-being should have a clear linkage with the feelings of the people to whom it is relevant. (Rodgers and Converse, 1975) Furthermore, Rodgers and Converse argue that both objective and subjective indicators are essential to an accurate perspective on the quality of life, and 'neither type can be properly interpreted in the absence of the other.' (Rodgers and Converse, 1975:128) Objective data such as the index of unemployment, number of hospitalizations, or crime rates ... all require subjective data to bring human meaning into them. Without investigating the values and attitudes of individuals towards their life circumstances, a measure of the quality of life would not be complete.

Besides objective and subjective approaches, there

is yet another perspective of looking at social indicators for measuring individual well-being. This view is derived from the work of urban planners and geographers, who are particularly concerned with behavior of individuals in urban settings. The recent trend in social and physical planning is one shifting from a deterministic perspective of the environment to one emphasizing voluntaristic choice of actions. (Michelson, 1975) The physical environment, rather than being regarded as a stimulus for certain expected behavioral responses, is conceived as embodying opportunity. Inherent in this new conceptual perspective in planning research, the unit utilized for study is that of behavior itself. (Chapin, 1971; Michelson, 1975; Perin, 1970) An important component of this recent trend is the fact that an overtly behavioristic set of variables is being taken in its own right and studied independently for its relevance to planning problems. Thus, a third type of social indicators is developed, namely, behavioral indicators.

Besides objective, subjective, and behavioral types of indicators, Kennedy *et al.* (1978a) have suggested that the inclusion of demographic variables, together with the above three types of indicators, is essential for a comprehensive view of individual well-being. They classify each type of social indicators of well-being as follows. Objective indicators are referred by them to 'objectively derived measures of conditions which are thought to

reflect social well-being'; such measures are defined according to the social values, norms and ideologies dominant in a society. Subjective indicators are perceptions reflecting individual well-being. Demographic variables are measures of age, sex, ethnicity, religion, social class, etc.; and experiential (or, behavioral) variables relate to the specific behavior or experiences of the individual, for example, the amount of time spent in various activities, social interactions with friends, neighbors, or relatives. (Kennedy et al., 1978a:10) These four types of variables interact in the following manner: Experiential variables intervene in the relationships of the other three types of data in that they illustrate processes such as behavioral adaptation in the context of certain objective conditions. These adaptations, in turn, directly affect the assessment of personal well-being depicted by subjective social indicators.

The Social Indicators Approach to the Study of Residential Satisfaction

In the light of the above discussion on social indicators research, we can study the three theoretical perspectives according to the social indicators orientation. Independent variables pertaining to three types of statistics, namely, objective, demographic, and behavioral, can be employed to study each of the perspectives as we find out to what extent can each type of variables be proven to

be indicators of (i.e., correlated with) residential satisfaction, which is depicted by two dependent variables using subjective measures.

To study Environmental Determinism, objective-environmental statistics can be employed as independent variables. By means of correlational analyses, we can study to what extent is this theoretical perspective viable in advocating objective statistics as indicators of environmental well-being, represented by residential satisfaction in our case. We include in these objective variables house type, internal density, and length of residence.

Similarly, to study the Gansian perspective, we employ demographic statistics. The ones to be studied are factors depicting stage in life cycle, these being age, marital status, and number of children. One other demographic variable to be included is tenure, a factor which has been found to be significant with respect to residential satisfaction. (Foote, 1960; Onibokun, 1976; Campbell *et al.*, 1976; Zehner, 1977)

To explore Chapin's theoretical perspective on well-being, behavioral statistics are used. These include variables depicting the degree of social contacts: number of neighbors known and frequency of socializing with friends. Finally, to conform to Chapin's train of thought, a variable tapping the amount of hours per week one spends on discretionary activities is also to be included as our independent variable in the category of behavioral

statistics.

Lastly, for our dependent variables, we employ subjective measures of well-being: they are individuals' evaluation of their satisfaction with their dwelling unit and their immediate neighborhood.

Before we proceed to Chapter III to discuss the operationalization of variables and other aspects of methodology, a problem has to be first dealt with regarding the categorization of concepts. It should be noted that a particular variable can be categorized differently in different research. This is because social concepts can take on any one of the four forms of classification depending on the perspective of the researcher. For example, 'social class' measured in terms of family income can be treated as a demographic variable, or an objective one. If perceived adequacy is used for its measure then it becomes a subjective variable. While also, it can be operationalized in terms of activity patterns, for example, variety of leisure-time pursuits, then it takes up a behavioral characteristic. (Kennedy et al., 1978a:11) In our case, for example, one can challenge that tenure should be regarded as an objective measure rather than a demographic one. However, since the tenure factor depicts a socio-economic status of the respondent, we are treating it as a demographic variable; while we refer objective statistics to those depicting concepts related to the residential environment such as house type, internal density, and length of

residence.

Let us now turn to discuss the operationalization of the variables in the coming chapter on methodology.

CHAPTER III

METHODOLOGY

Edmonton Area Study

The data utilized in the present study are obtained from the 1978 Edmonton Area Study conducted by the Population Research Laboratory and sponsored by the Sociology Department of the University of Alberta. The Edmonton Area Study was first initiated in 1977 by faculty members in the Department of Sociology. The 1978 study was expanded with a larger interview schedule and more respondents, 341 in 1977 compared to 452 in 1978. (Kennedy *et al.*, 1978b)

A concern which was carried over from the 1977 study was the development of a longitudinal picture of the 'quality of life' in Edmonton and the assessment of changes that take place in Edmontonians' evaluation of their daily lives. An improvement from the 1977 Study is the addition of survey questions relating to 'actual behavioral measures, which include social networks and time budgets, as well as questions depicting 'urban values', which measure both objective residential characteristics, and respondents' own attitudes towards their residential environment at both the dwelling and the neighborhood level. These additions and refinements of questions are especially relevant for our present study.

Sample Design

The sampling frame used for the 1978 Edmonton Area Study was the July 1, 1977 and the January 1, 1978 editions of the Edmonton Telephones Street Numerical Address Directory. Households with a telephone made up the sampling units selected from the directory. The sample was selected from the July 1st directory, while the January 1st directory was for verification purpose when it was released.

Eligible respondents were persons in a household who were eighteen years of age or over. In a family household the respondent was usually the husband or the wife. In a non-family household any person over eighteen could qualify. A two stage sampling design was employed with enumeration areas as the first stage unit. These areas were first stratified according to income to comprise 71 strata. Excluded enumeration areas included places labelled as hospitals, nurses' residences, nursing homes and military establishments, and those designated as 'new areas'. One enumeration area was selected from each stratum with probability proportion to size. Ten percent of the city's enumeration areas were selected. From each of the selected enumeration areas a random sample of households was taken from the telephone directory. (Kennedy et al., 1978b:2)

Respondents were chosen on a quota basis. For the first third of the assigned households, the interviewer

asked for the male head of the household. Thereafter either a male or a female could be selected to respond. The purpose of this procedure was to obtain an approximately equal number of male and female respondents.

Altogether there were twenty-four interviewers trained to conduct the 452 interviews. Among them were nine males and fifteen females. The final response rate was 80 percent.

Operationalization of the Variables

In the previous chapter, we have identified four different types of social indicators of well-being, namely, objective, demographic, behavioral, and subjective. We have also proposed that by selecting variables according to the respective four types of statistics, we can study respectively the three theoretical perspectives by investigating to what extent is each particular type of data being indicators of residential satisfaction. We shall discuss the operationalizing of variables according to our three theoretical perspectives under study.

1. To study environmental determinism of residential satisfaction, we employ objective statistics pertaining to environmental conditions as our independent variables. They are:

- a) *House Type* - Many have cited the significance of the type of dwelling in affecting individuals' feelings

of residential satisfaction. (Homenuck, 1973; Knight and Menchik, 1974; Fanning, 1967; Galle *et al.*, 1972) In the present study, house type is a dichotomous variable distinguishing between single versus multiple dwellings.

b) *Internal Density** - Ever since Calhoun's (1963) experiment, the relation between this environmental factor and individual well-being has been prevalent in the works of those concerned with the man-environment relation. (Galle *et al.*, 1972; Gillis, 1974; Fischer *et al.*, 1975; Mitchell, 1971; just to name a few) The density variable used in the present study indicates internal density of a dwelling unit, measured by the amount of square feet per person in the household.

c) *Length of Residence* - Kasarda and Janowitz (1974) have found that a longer stay in a certain dwelling is directly related to higher community participation and feelings of attachment, as well as more positive sentiment towards one's immediate neighborhood. Similarly, Campbell *et al.* (1976) have also cited that housing satisfaction increases with length of residence. In our present study, length of residence is to be treated from the deterministic point of view

* *External Density* is not included in this study as such measurements are not available in the 1978 Edmonton Area Study on which the present thesis is based.

with the assumption that the longer the stay, the higher the satisfaction will be. Length of residence is represented by the number of months a respondent has lived in his dwelling unit.

2. Elaborating on Gans' theoretical arguments, we select demographic variables depicting respondents' stage in life cycle as well as one measuring status of home ownership as our independent variables:

- a) *Age*
- b) *Marital Status* - This variable distinguishes between the married from the unmarried respondents.
- c) *Number of Children* - Measures the exact number of children in the respondent's household, from 0 to 4 and above.
- d) *Tenure* - This variable simply distinguishes between those who own their home versus those who rent. As have been cited by various research findings (e.g., Foote, 1960; Onibokun, 1976; Campbell et al., 1976; Zehner, 1977), tenure should play a significant role in this analysis.

3. For behavioral variables, we employ Chapin's concept of discretionary activities and variables measuring social contact.

- a) *Discretionary Activities* - This variable measures the number of hours in a week a respondent spends on

'free time' activities (activities which are not obligatory such as the main job, eating, personal care, housework or childcare; Chapin, 1971) In this study, discretionary activities include watching T.V., reading, listening to radio and records, hobbies, participation in organized sports, other physical exercise, attending theatres, shows, and spectator sports, social visiting, and involvement in community activities.

- b) *Number of adults known in the neighborhood* - This variable measures the proportion of neighbors a respondent knows by name, depicting the extent of social contact in the neighborhood level.
- c) *Frequency of socializing with friends* - The variable measures how often a respondent gets together with friends, either in his own home or at his friends' places.

It should be noted that a certain degree of correlation is expected among our independent variables, for example, it is reasonable to expect a relationship between marital status and children in the household, or, tenure and house type. And from Table 1, we can see that such correlations do exist. However, through partial correlations which we employ in the first part of our findings, we can eliminate the effect of one variable at a time when we analyze a relation between a particular independent and dependent

variable; while in *PART II*, the effects of all other variables are controlled as the independent and dependent variables are being statistically analyzed. Through these two methods, we can study the relationship between our ten independent and the two dependent variables in a meaningful manner, despite the possible correlation among the explanatory factors. The zero order correlations among our variables are recorded in Table 1.

4. For the dependent variables, we choose subjective measures which directly depict the feeling of satisfaction of the respondents with respect to their dwelling and their neighborhood:

- a) *Satisfaction with the dwelling* - The respondents are asked to assess their satisfaction with their house/apartment on a seven-point scale from very dissatisfied to very satisfied.
- b) *Satisfaction with the neighborhood* - Measurement technique being the same as the above. The respondents are asked to rate their satisfaction with their neighborhood as a place to live.

It should be noted that although there is a correlation between satisfaction with the dwelling and that with the neighborhood ($r = .45$), we are treating them separately as two variables. Related research have shown that there is a need for finding the determinants of residential satisfaction in more specifically defined areas related to one's

Table 1

Zero Order Correlations of Independent and Dependent Variables

	Dwel- ling Satis- factn	Neigh- borhood Satis- faction	Tenure	Age	Marital Status	Number of Chil- dren	House Type	Density	Length of Resi- dence	Neigh- bors Known	Socia- lizing With Friends	Discre- tionary Activi- ties
Dwelling Satisf.	1.000	.453 ¹	-.331 ¹	.271 ¹	.111 ³	.037	-.261 ¹	.136 ²	.281 ¹	-.240 ¹	.175 ¹	-.076
Neighbhd. Satisf.		1.000	-.223 ¹	.258 ¹	.054	-.005	-.228 ¹	.096 ³	.187 ¹	-.246 ¹	.071	.016
Tenure			1.000	-.422 ¹	-.404 ¹	-.317 ¹	.684 ¹	-.127 ²	-.506 ¹	.449 ¹	-.265 ¹	.098 ³
Age				1.000	.178 ¹	-.136 ²	-.357 ¹	.287 ¹	.621 ¹	-.299 ¹	.374 ¹	.047
Marital Status					1.000	.296 ¹	-.233 ¹	-.207 ¹	.138 ²	-.178 ¹	.190 ¹	-.108 ³
No. of Children						1.000	-.204 ¹	-.378 ¹	-.063	-.210 ¹	.045	-.279 ¹
House Type							1.000	-.185 ¹	-.435 ¹	.399 ¹	-.270 ¹	.007
Density								1.000	.176 ¹	-.062	.079	.039
Lgth of Res.									1.000	-.378 ¹	.248 ¹	.018
Neighbors Known										1.000	-.107 ³	-.004
Soc. with Friends											1.000	-.062
Discre. Actvts.												1.000

¹Significant at .001 ²Significant at .01 ³Significant at .05

residential environment, such as the dwelling, the immediate neighborhood, the community, or the city. (Campbell et al., 1976; Zehner, 1977) Zehner (1977) in his study of new communities concludes that different levels of indicators depict quite different quality of life. Thus, we can assume that residential satisfaction cannot be analyzed properly without the specification of the level of concern, in our case, the dwelling level as distinguished from the neighborhood level. Furthermore, based on the studies cited above, we assume that there is a difference in nature between the two levels of satisfaction in that a particular variable can be an indicator of satisfaction in one level but not necessarily an indicator of satisfaction in another level. In the upcoming chapter, we shall explore the validity of our present assumption.

Statistical Analysis

Data analyses will be carried out by utilizing Statistical Packages for the Social Sciences. (Nie, et al., 1975)

In *PART I* of Chapter IV, we employ zero order and partial correlations to study relationship between the respective independent variables and the two aspects of residential satisfaction. The zero order correlation measures the association between two variables, in this case, an independent variable and a dependent variable. Partial correlations are applied in the context of the three

theoretical perspectives under study. For example, when studying the zero order correlations of objective-environmental conditions and residential satisfaction, we introduce demographic and behavioral variables as controls for it is within the theoretical framework of Gans and Chapin respectively to argue that any relation between the objective environment and feelings of well-being is caused or intervened by demographic or behavioral factors. It should be noted that the purpose of partial correlations is to observe whether a zero order relation can be affected by controlling for a variable that is hypothesized to be relevant within a theoretical context. (Gordon, 1968)

In a few places in *PART I* of Chapter IV, the gamma test of statistical significance is used. In these cases, partial gammas statistically calculated from crosstabs tables are analysed. The gamma statistic is a measure of association for ordinal data. In this study, partial gamma measures the relationship of two variables while controlling for one other variable.

After studying each theoretical perspective individually, in *PART II* of Chapter IV, we employ multiple regression to look at the three perspectives as a whole as well as to compare their relative strength in explaining residential satisfaction, a task which cannot be achieved by partial correlations.

Multiple regression is a statistical technique through which the relationship between a dependent variable

and a set of independent or, predictor, variables can be analyzed. Unlike partial correlations, multiple regression allows the holding constant of all variables when a particular independent variable is being statistically analyzed with respect to the dependent variable. In the present study, stepwise multiple regression is applied. Although this particular method presents the independent variables in descending order of regression coefficient, to interpret such results strictly according to the stepwise order can be misleading since redundancy, or, correlations of the independent variables, can affect the value of regression coefficients, hence, the order of the variables. (Gordon, 1968) Rather than merely observing the stepwise order of the independent variables, therefore, we employ multiple regression to obtain an overview of the explanatory power of each type of statistics in order to compare the three theoretical perspectives in explaining dwelling and neighborhood satisfaction. The proportion of variance explained by each independent variable is represented by the following formula:

$$\begin{array}{l} \text{Proportion} \\ \text{of Variance} \\ \text{Explained} \end{array} = \text{beta} \times r_{ij}$$

where:

- beta = standardized regression coefficient
- r = zero order correlation coefficient
- i = independent variable
- j = dependent variable

The total proportion of variance explained by all the independent variables can depict the overall strength of explanatory power offered by the three theoretical perspectives together. An overall concluding statement regarding these three perspectives as a whole can thus be made.

CHAPTER IV

FINDINGS

We shall divide this chapter into two main parts.

PART I analyzes the relevance of each of the three theoretical perspectives with respect to residential satisfaction.

PART II reports the findings from multiple regression through which we analyze the theoretical perspectives comparatively and as a whole in terms of their strength in explaining the two aspects of residential satisfaction.

PART I

A. Environmental Determinism

The major concern among deterministic theorists regarding the issue of residential well-being has been the objective environmental conditions. Among some of the crucial environmental factors, density and house type are two prominent features into which they look for adverse effects on individuals. Generally, they have succeeded in obtaining findings which show that there are correlations between density, or house type, with what they term 'pathological behavior' such as crime, juvenile delinquency, admissions to mental hospital, neurosis and stress, welfare families ... etc. On the basis of such findings, they conclude that high density, or multiple dwellings, are causes for social

pathologies and thus, would distort the well-being of inhabitants. (Wirth, 1938; Calhoun, 1963; Calle et al., 1972; Milgram, 1970; Schorr, 1963; Schmid, 1960; Fanning, 1967)

Some have argued against such deterministic conclusions by pointing out that these studies neglect socio-cultural differences (Hall, 1966; Mitchell, 1971); ignore the possible effect of social interactional factors (Kennedy, 1978; Branch, 1978); or overlook situational and individual characteristics (Moos, 1976). While these criticisms may be valid, it is still an open question concerning the usefulness of objective data for depicting individual well-being.

In this section, we shall investigate the relationship between objective environmental variables and subjective evaluation of residential satisfaction in order to study the relevance of the environmental deterministic perspective.

While an objective measure of crime rates, rates of admission to mental hospitals, or the ratio of welfare families can be employed to shed some light on the social situation of a particular community, they are not adequate for probing subjective perception of well-being. It has been cited that the relationship between objective conditions and subjective indicators of well-being has been disappointingly weak, if any such relationship exists at all. (Schneider, 1976:302) Therefore in this study, we will begin by examining the relationship between objective

factors and measures of residential well-being, depicted by the respondents' satisfaction with their dwelling unit and their immediate neighborhood.

Our findings showing the effects of environmental factors on satisfaction with dwelling/neighborhood are obtained from zero order and partial correlations between our three objective variables respectively with the dependent variables. Table 2 shows the results.

From the zero order correlations, we can see that all of the three environmental factors are associated with both measures of satisfaction. Specifically, single-family dwellers tend to be more satisfied with both their dwelling and their neighborhood than multiple-unit residents. Also, the longer the length of residence, the more satisfaction one tends to enjoy. Density is also found to be related to residential satisfaction in that higher density is associated with less satisfaction than lower density. The correlations, however, are much weaker compared to those of the other two independent variables with residential satisfaction.

These findings, particularly the ones relating house type and density with satisfaction, are consistent with the general deterministic conclusions which we have cited before. Shown by the zero order correlations, high density and multiple-dwellings are indeed related to lower satisfaction. As for length of residence, we have also obtained findings similar to what Kasarda and Janowitz

Table 2

Partial Correlations - Residential Satisfaction by Environmental Factors
Controlling for Demographic Characteristics & Behavioral Pattern

<u>Environ- mental Factors</u>	<u>Residential Satisfaction</u>	<u>Demographic Characteristics (Partial)</u>					<u>Behavioral Pattern</u>		
		(Zero order)	Tenure	Age	Marital Status	Number of Children	Neighbors Known	Socializing With Friends	Dis- cretionary Activities
House Type	a. Dwelling	-.261 ¹	-.051	-.183 ¹	-.243 ¹	.259 ¹	-.186 ¹	-.225 ¹	-.261 ¹
	b. Neighbor- hood	-.228 ¹	-.107 ³	-.151 ²	-.221 ¹	.234 ¹	-.146 ²	-.218 ¹	-.228 ¹
Density	a. Dwelling	.136 ²	.101 ³	.063	.164 ¹	.162 ¹	.125 ²	.125 ²	.140 ²
	b. Neighbor- hood	.097 ³	.071	.024	.110 ³	.102 ³	.084	.091 ³	.096 ³
Length of Resi- dence	a. Dwelling	.281 ¹	.140 ²	.150 ²	.270 ¹	.285 ¹	.212 ¹	.249 ¹	.284 ¹
	b. Neighbor- hood	.187 ¹	.089 ³	.035	.182 ¹	.187 ¹	.105 ³	.175 ¹	.187 ¹

¹Significant at .001²Significant at .01³Significant at .05

(1974) have cited, that is, the longer the stay, the more satisfied the residents tend to be with both their dwelling and their neighborhood.

Before accepting these results at face value, however, we shall turn to the partial correlations with demographic and behavioral characteristics being held as controls, in order to investigate whether these relations are due to demographic differences, as Gans would have argued, or are caused by behavioral factors, according to Chapin's train of thought. Let us now turn to the partial correlations in Table 2 and discuss them according to each of the environmental factors.

a) *House Type*

When control variables are introduced, we find that tenure has a significant effect on the relation between house type and residential satisfaction. The relation of house type and satisfaction with the dwelling is shown to be spurious, while satisfaction with the neighborhood is significantly weakened when tenure is being held constant. As we investigate more deeply this intervening effect of tenure in neighborhood satisfaction, we find that single-family dwellers are more satisfied with their neighborhood if they own their homes. We fail to observe this relationship among renters. (Table 3) In other words, owners of single-family dwellings are shown to be more satisfied with their neighborhood than owners of multiple units while we

cannot find any significant difference among renters of these two types of dwelling.

Table 3

Neighborhood Satisfaction by House Type

Controlling for Tenure (Gamma)

House Type (single vs. multiple)

Tenure

	<u>own</u>	<u>rent</u>
Neighborhood Satisfaction	-.509 ¹	n.s.

¹Significant at .01

b) *Internal Density*

When tenure, the age factor or the neighbors known variables are being held constant statistically, we find that the zero order correlations between density and residential satisfaction which we have observed before are shown to be spurious. In other words, dwelling density has no effect at all on the resident's perception of either dwelling or neighborhood satisfaction, a finding which is contradictory to what a deterministic theorist would have expected. The effect of tenure and age on satisfaction

will be discussed further in the next section when we talk about the Gansian perspective, and that of neighbors known will be analyzed in section C when we discuss Chapin's theoretical perspective.

c) *Length of Residence*

Again, when the age factor is held constant, we find an acute decrease in the correlation between length of residence and dwelling satisfaction, although it still remains statistically significant. However, the relation between residence length and neighborhood satisfaction has totally disappeared. Our findings here indicate that a longer stay in the dwelling could lead to higher satisfaction levels with one's particular home but not necessarily with the neighborhood. This finding reaffirms our assumption of the difference in nature inherent in these two levels of residential environment as mentioned in Chapter III - a variable can be an indicator of one level of satisfaction but not necessarily an indicator of the other as well.

From Table 2, we see that the partialling out of the behavioral factors has less effect on the zero order relations than the partialling out of demographic factors; furthermore, the behavioral variable of time spent on discretionary activities is shown to have no effect at all on the original relations. However, it is still worthwhile for us to explore in more detail how behavioral

characteristics, social contact patterns in particular, can intervene into the relations between objective-environmental factors and feelings of residential satisfaction. Tables 4 and 5 report the results obtained from crosstabulation of environment conditions and residential satisfaction, while controlling for behavioral variables. As we have cited that the zero order correlations of house

Table 4

Neighborhood Satisfaction by House Type
Controlling for Social Contact (Gamma)

House Type (single vs. multiple)

	Neighbors Known		Socializing with Friends	
	All to <u>half</u>	Less than half to <u>none</u>	Daily to 1-3 <u>times per week</u>	1-3 times per month <u>to never</u>
<u>Neighbor-</u> <u>hood Satis-</u> <u>faction</u>	n.s.	-.292 ¹	n.s.	-.436 ¹

¹Significant at .001

type and dwelling satisfaction, density and the two satisfaction variables, as well as length of residence and neighborhood satisfaction, are shown to be spurious when demographic factors are controlled, we exclude these

Table 5

Dwelling Satisfaction by Length of Residence

Controlling for Social Contact (Gamma)

	<u>Length of Residence</u>			
	Neighbors Known		Socializing with Friends	
	<u>All to half</u>	<u>Less than half to none</u>	<u>Daily to 1-3 times per week</u>	<u>1-3 times per month to never</u>
<u>Dwelling Satisfac- tion</u>	n.s.	.353 ¹	.314 ¹	.369 ¹

¹Significant at .001

spurious relations in our study in Tables 4 and 5. Furthermore, we are employing only social contact variables as controls in these two tables as we have already cited that the amount of time spent on discretionary activities has no effect on the zero order correlations in Table 2.

The general trend shown in Tables 4 and 5 indicates that residential satisfaction are affected differentially by the residential environment according to the amount of social contact in which the residents are involved. When social contact is low (knowing few neighbors or meeting friends rarely), house type and length of residence have greater effect on individuals than when social contact is high. From our zero order correlations in Table 2, we note

that those who live in single-family dwellings and those who have stayed in their residence for a longer period tend to have greater neighborhood and dwelling satisfaction respectively. Here, we find that behavioral adaptation is a crucial factor linking environmental conditions and residential satisfaction in that those who maintain higher social contact are more satisfied with their dwelling or neighborhood even if they are multiple-unit dwellers or if they have only stayed in their residence for a short time. House type and length of residence can and do affect individuals' perception of satisfaction, however, by no means should these relations be seen in a cause-effect manner. Behavioral adaptations of the individual *vis-à-vis* constraining environmental conditions (particularly in the case of multiple-family dwellers) are crucial intervening factors in determining their perception of residential satisfaction. It should be noted that our finding here is consistent with previous research on the same issue.

(Kennedy, 1978)

B. Gansian Theoretical Perspective

From the above analysis on environmental conditions and residential satisfaction, we find that demographic variables are important as intervening or even causal (in the cases where spurious relations are found) factors. In this section, we will explore the relevance of Gans' assumption that different demographic groups are marked by

different attitudes and perceptions. (Gans, 1961a) Would people's subjective evaluation of their own dwelling/neighborhood be different if they are characterized by different stages in life cycle? Or, are homeowners necessarily more satisfied with their homes than renters, even if their dwelling is of the same type? In the following discussion we shall address ourselves to these questions of to what extent do demographic characteristics influence individuals' subjective evaluation of residential satisfaction.

Table 6 shows the zero order and partial correlations of demographic characteristics with residential satisfaction. We shall discuss each independent variable respectively.

a) *Tenure*

The zero order correlations in Table 6 show that owners tend to be more satisfied with their dwelling as well as their neighborhood than renters are. However, when house type is being controlled for, these correlations are weakened. When we investigate further into the intervening effect of house type, we observe that only among single-family dwellings do we find owners more satisfied than renters. Among multiple-units, we fail to observe any relationship between tenure and residential satisfaction. (Table 7)

Table 6

Partial Correlations - Residential Satisfaction by Demographic Characteristics,
Controlling for Environmental Factors & Behavioral Pattern

Demographic Characteristics	Residential Satisfaction	Environmental Factors (Partials)				Behavioral Pattern		
		(Zero) (Order)	House Type	Density	Length of Residence	Neighbors Known	Socializing With Friends	Discretionary Activities
Tenure	a. Dwelling	-.331 ¹	-.216 ¹	-.319 ¹	-.227 ¹	-.257 ¹	-.299 ¹	-.326 ¹
	b. Neighborhood	-.223 ¹	-.094 ³	-.213 ¹	-.151 ²	-.129 ²	-.212 ¹	-.225 ¹
Age	a. Dwelling	.271 ¹	.197 ¹	.244 ¹	.128 ²	.215 ¹	.225 ¹	.275 ¹
	b. Neighborhood	.258 ¹	.194 ¹	.242 ¹	.184 ¹	.200 ¹	.250 ¹	.258 ¹
Marital Status	a. Dwelling	.111 ³	.054	.144 ²	.076	.072	.081	.104 ³
	b. Neighborhood	.054	.001	.076	.029	.010	.041	.056
Number of Children	a. Dwelling	.038	-.017	.097 ³	.058	-.014	.030	.017
	b. Neighborhood	-.005	-.054	.034	.007	-.060	-.008	-.001

¹Significant at .001²Significant at .01³Significant at .05

Table 7

Residential Satisfaction by Tenure
Controlling for House Type (Gamma)

	<u>Tenure</u> (Own or rent)	
	House Type	
	<u>Single</u>	<u>Multiple</u>
Dwelling Satisfaction	-.510 ¹	n.s.
Neighborhood Satisfaction	-.383 ²	n.s.

¹Significant at .001

²Significant at .01

b) *Age*

The older the respondents are, the more satisfied they tend to be with both their dwelling or neighborhood. Density does not affect these correlations, however, the effects of house type and length of residence can be observed. Although these two environmental factors do weaken the relation between age and residential satisfaction somewhat, the correlations still remain statistically significant. This finding between age and the perception of residential satisfaction is consistent with previous research mentioned earlier. (Angrist, 1974, Campbell et al., 1976)

c) *Marital Status*

The zero order correlations in Table 6 show that marital status is weakly related to dwelling satisfaction, but is unrelated to neighborhood satisfaction. The married respondents are basically more satisfied with their dwelling than those who are not married. However, when environmental and behavioral factors are held constant, this relation disappears, showing that there is, in fact, no correlation between marital status and dwelling satisfaction; any relation found in the zero order correlation is actually caused by factors pertaining to the residential environment or one's behavioral patterns.

d) *Number of Children*

No relation is shown by the zero order correlations of number of children and residential satisfaction. However, when density is being controlled for, a weak but significant relation appears between number of children and dwelling satisfaction, indicating the effect of children in the household to be significant in the perception of satisfaction with the dwelling. Specifically, the more children in the household, the more satisfied the respondent would be towards his dwelling, but not necessarily, however, towards his immediate neighborhood.

From Table 6, we can see that when being held as controls, behavioral variables assert less effect on the

zero order correlations than the objective-environmental variables. As we have done in section A, we shall explore in more detail how behavioral variables intervene into the relations between demographic variables and subjective perception of residential satisfaction. As in section A, we shall hold constant behavioral variables while crosstabulating demographic characteristics with subjective indicators of satisfaction. We exclude discretionary activities in this upcoming analysis because, as observed before, this particular behavioral variable has only minimal effect on the zero order correlations. Tables 8 and 9 show the significant results.

From Table 8, we observe that age effects subjective evaluation of residential satisfaction more if the person is engaged in fewer social contacts. As mentioned before (Table 6), the older the respondent, the more satisfied he would be with his residential environment; the relation holds even after environmental factors are being controlled for. Now from Table 8, we learn that if a respondent engages in few social contacts (knows few neighbors, or socializes with friends rarely), his evaluation of residential satisfaction is likely to be affected by his age more than if he engages in more social contacts.

The relation between tenure and neighborhood satisfaction is also affected, but only by number of neighbors known. Table 9 shows that tenure affects one's neighborhood satisfaction only when one knows few neighbors. In

Table 8

Residential Satisfaction by Age
Controlling for Social Contact

	<u>Age</u>			
	Neighbors Known		Socializing with Friends	
	<u>All to half</u>	<u>Less than half to none</u>	<u>Daily to 1-3 times per week</u>	<u>1-3 times per month to never</u>
Dwelling Satisfaction	n.s.	.331 ¹	.288 ¹	.317 ¹
Neighborhood Satisfaction	.247 ²	.276 ¹	.178 ²	.436 ¹

¹Significant at .001

²Significant at .05

Table 9

Neighborhood Satisfaction by Tenure
Controlling for Neighbors Known

	<u>Tenure</u>	
	Neighbors Known	
	<u>All to half</u>	<u>Less than half to none</u>
Neighborhood Satisfaction	n.s.	-.328 ¹

¹Significant at .001

other words, those who have greater social contact in the neighborhood are less likely to feel dissatisfied with their neighborhood even if they are renting rather than own their dwelling. Again, behavioral adaptations are important in coping with residential constraints.

We see from this section that certain demographic characteristics can influence one's perception of residential satisfaction; for example, owners and those who are older are more satisfied with both their dwelling and their neighborhood than their counterparts, while number of children is found to be weakly related to dwelling satisfaction when density is being held constant. However, from partial correlations, we have no evidence that the theoretical assumption of demographic characteristics being the sole prominent factors in affecting individuals' attitudes is completely valid, as we have also cited the intervening effects of objective-environmental as well as behavioral variables at work in the relations between demographic factors and subjective indicators of residential satisfaction.

Let us now turn to study Chapin's theoretical approach by employing behavioral variables as independent variables in the course of explaining our dependent variables.

C. Chapin's Theoretical Perspective

From both sections A and B, we have discussed some of the intervening effects of behavioral variables on residential satisfaction. Particularly in section A, we mentioned that environmental factors affect perception of satisfaction to a greater extent when social contact is low. Similarly in section B, we noted that for those who maintain a small amount of social interaction, their age and tenure status can affect their perceptions of residential satisfaction more than if they maintain a higher degree of social contact.

In this section, we will explore the independent effects behavioral variables have on individuals' perception of residential satisfaction. Chapin has argued that the amount of time spent on discretionary activities can be treated as an index of the quality of life in a community. He states that activities are outcomes of human attempts to achieve particular needs and goals. Therefore, any aspect in the environment constraining desired activities would naturally bring dissatisfaction. (Chapin, 1971, 1974) The amount of activities achieved then, is directly related to the individual's perception of environmental satisfaction. The implication of Chapin's assumption is that the more time a person spends on, particularly, discretionary activities, the better off he is in terms of quality of life or individual well-being. In this section, we shall test

Chapin's argument by exploring the relationship between behavioral patterns and residential satisfaction. Would a larger amount of activities and social contacts bring about higher perceived satisfaction? In addition to the discretionary activities Chapin has suggested, we add social contact variables to our study. If discretionary activities are cultural goals which needs to be fulfilled, as Chapin has argued, we can similarly propose that being sociable and maintaining social interactions are also valued in our culture. According to Chapin's theoretical assumption, we can expect a positive relationship between a higher degree of social interaction and a larger amount of discretionary activities with residential satisfaction. Table 10 shows our findings to this particular issue.

a) *Neighbors Known*

From the zero order correlations, we see that the more neighbors one knows, the more satisfied one would likely feel towards one's dwelling as well as one's neighborhood, a finding which is consistent with the implication derived from Chapin's theoretical perspective mentioned above. When we hold constant the variables of environmental, or demographic factors, we find that the correlations remain significant, indicating that social interactions in the neighborhood can enhance one's satisfaction with the residential environment in both the dwelling and the neighborhood levels.

Table 10

Partial Correlations - Residential Satisfaction by Behavioral Pattern,
Controlling for Environmental Factors & Demographic Characteristics

<u>Behavioral Pattern</u>	<u>Residential Satisfaction</u>	(Zero) (Order)	<u>Environmental Factors</u> (Partials)			<u>Demographic Characteristics</u>			
			House Type	Density	Length of Residence	Tenure	Age	Marital Status	Number of Children
Neighbors Known	a. Dwelling	-.240 ¹	-.154 ²	-.234 ¹	-.151 ²	-.109 ³	-.173 ¹	-.225 ¹	-.238 ¹
	b. Neighbor- hood	-.246 ¹	-.174 ¹	-.242 ¹	-.193 ¹	-.168 ¹	-.184 ¹	-.241 ¹	-.253 ¹
Socializ- ing with Friends	a. Dwelling	.175 ¹	.113 ²	.167 ¹	.113 ³	.096 ³	.083	.158 ¹	.174 ¹
	b. Neighbor- hood	.071	.010	.064	.026	.013	-.029	.062	.071
Discre- tionary Activities	a. Dwelling	-.076	-.077	-.083	-.085	-.047	-.093	-.065	-.069
	b. Neighbor- hood	.016	.018	.012	.013	.039	.004	.022	.015

¹Significant at .001²Significant at .01³Significant at .05

b) *Socializing with Friends*

Contrary to Chapin's theoretical implication, we find that the more often one socializes with friends, the less satisfied one would tend to feel towards one's dwelling. When control variables are employed, however, we see that this relation disappears, indicating that how often a persons gets together with his friends is unrelated to his perception of residential satisfaction.

c) *Discretionary Activities*

According to the zero order correlations in Table 10, we see that the amount of discretionary activities is unrelated to either dwelling or neighborhood satisfaction. When controls are being employed, the absence of relationship remains.

Overall, we see that only the relations between neighbors known and residential satisfaction remain significant after control variables are introduced. We can argue therefore that behavioral variables have little independent effect on individuals' subjective evaluation of residential satisfaction when compared to their intervening roles which we found from sections A and B. Furthermore, we cannot find any evidence supporting Chapin's theoretical assumption that the amount of discretionary activities necessarily measures individual well-being; rather, if behavioral data are significant at all, we would have to say

that pattern of social contacts is more important in explaining residential satisfaction than time spent on discretionary activities.

Summary

From section A, we find that owners of single-family houses are more satisfied with their neighborhood than owners of multiple-dwelling units. In other words, house type is an indicator of neighborhood satisfaction when intervened by the tenure factor. The more often a person socializes with friends or the more neighbors he knows, however, the less likely he would be affected by house type in his perception of neighborhood satisfaction. House type is found not to be directly related to one's satisfaction with the dwelling.

When partialling the effects of tenure, age, or neighbors known, internal density is shown to have no effect on residents' evaluation of satisfaction. While length of residence is not related to satisfaction with the neighborhood, it is an indicator of dwelling satisfaction in that the longer the stay, the more likely one would feel satisfied with the dwelling unit. Similar to what we have observed with house type, the higher the degree of social contact (e.g., knowing more neighbors or meeting friends more often), the less likely a person's perception of satisfaction would be affected by length of residence.

In section B, we report the effect of demographic

characteristics on subjective evaluation of residential satisfaction. We cite that tenure is an indicator of residential satisfaction in that owners are more satisfied with their dwellings as well as their neighborhood than renters, however, this phenomenon only applies to single-family dwellers. Age is shown to be an indicator of residential satisfaction for we find that older respondents tend to perceive a higher satisfaction than younger ones. There is also evidence showing that the more children there are in the household, the more satisfied the respondent would feel towards the dwelling unit, while no such finding can be observed in the neighborhood level. Marital status is the only demographic variable with no direct effect on either level of residential satisfaction.

Again, we have noted that social contact variables assert intervening effects in that the higher the degree of social interactions a person engages in, the less likely he would be affected by his own demographic characteristics in the perception of satisfaction.

From section C we learn that of the three behavioral variables, the social contact variable of neighbors known is the only behavioral indicator of residential satisfaction. Specifically, the more neighbors one knows, the more satisfaction one would likely to perceive towards one's dwelling and neighborhood.

We find that the amount of time a person spends with friends or on discretionary activities have no direct effect on his perception of satisfaction, a finding which

is contrary to Chapin's theoretical assumption.

Compared to their intervening effects which we have cited in sections A and B, we can argue that social contacts have less prominent roles as independent variables than as intermediating factors. The effects of neighbors known, however, is an obvious exception.

From what we have cited in sections A to C, we argue that none of the theoretical perspective is completely correct in advocating solely their particular type of social statistics to approach the problem of man-environment relation. Not all of the variables in one particular type of statistics can be treated as indicators of residential satisfaction, rather, we find that certain variables pertaining to each of these three categories can be regarded as indicators. While the perspectives we study assume the importance of a single set of variables for the study of man *vis-à-vis* his urban environment, many studies on the perception of environmental well-being have emphasized the multivariate concept of satisfaction - the notion that satisfaction with dwellings and neighborhood is, in fact, dependent on a number of variables and that not one single type of indicators is sufficient in depicting a comprehensive view of residential satisfaction. (Bunge, 1975: Campbell *et al.*, 1976; Kennedy *et al.*, 1978a; Zehner, 1977) Our findings here in *PART I* have supported this multivariate view as we have cited that objective-environmental variables, demographic characteristics, as well as

behavioral factors, all have effects on individuals' perception of residential satisfaction.

Now that we have observed respectively the effects of objective, demographic, and behavioral variables on the subjective evaluation of residential satisfaction, we shall now turn to compare the three theoretical perspectives in terms of their strength in explaining residential satisfaction, as well as take an overall look at the perspectives as a whole by means of multiple regression analysis.

PART II

From Tables 11 and 12, we observe that the demographic variables of tenure and age respectively explain the highest proportion of variance in dwelling and neighborhood satisfaction. The other variables add little explained variance following these two demographic indicators. A reason for the lack of additional explanatory power is due to the intercorrelations among the independent variables such that the effects of the latter variables are being accounted for by the earlier ones on the list.

(Gordon, 1968) However, we can compare the total proportion of variance explained to study the relative strength of the three theoretical perspectives in explaining residential satisfaction.

From Table 11, when we add up the proportion of variance explained according to each type of data, we find that demographic variables account for a total of 8.7

Table 11

Multiple Regression of Objective, Demographic, and Behavioral Variables on Satisfaction with Dwelling

	Beta (B)	F*	Proportion of total variance explained (Beta x r_{ij}^{**})	Variance explained (%)
1. Tenure	-.195	5.695	.065	6.5
2. Neighbors Known	-.097	2.812	.023	2.3
3. Age	.073	1.108	.020	2.0
4. Length of Residence	.070	1.015	.020	2.0
5. Socializing with Friends	.059	1.147	.010	1.0
6. Density	.053	.799	.007	.7
7. Discretionary Activities	-.071	1.832	.005	.5
8. House Type	-.015	.043	.004	.4
9. Children in Household	-.033	.268	.001	.1
10. Marital Status	-.009	.024	.001	.1
			Total Explained Variance	15.6%

* With df = 10
residual = 344
F has to be ≥ 1.83 to be significant at .05

** r = zero order correlation coefficient
i = independent variable
j = dependent variable i.e. dwelling satisfaction

Table 12

Multiple Regression of Objective, Demographic, and
Behavioral Variables on Satisfaction with Neighborhood

	Beta (B)	F*	Proportion of total variance explained (Beta x r_{ij}^{**})	Variance explained (%)
1. Age	.203	8.103	.052	5.2
2. Neighbors Known	-.160	7.265	.039	3.9
3. House Type	-.107	2.176	.024	2.4
4. Tenure	-.068	.659	.015	1.5
5. Length of Residence	-.066	.854	.012	1.2
6. Socializing with Friends	-.044	.602	.003	.3
7. Marital Status	-.033	.317	.002	.2
8. Density	-.012	.039	.001	.1
9. Children in Household	-.053	.657	.000	.0
10. Discretionary Activities	-.007	.015	.000	.0
Total Explained Variance				14.8%

* With df = 10

residual = 344

F has to be ≥ 1.83 to be significant at .05

** r = zero order correlation coefficient

i = independent variable

j = dependent variable i.e. neighborhood satisfaction

percent of variance in dwelling satisfaction, while behavioral and objective variables make up 3.8 and 3.1 percent respectively. And from Table 12, we observe similar results. Demographic variables explain a total of 6.9 percent of variance in neighborhood satisfaction, while behavioral and objective data explain 4.2 and 3.7 percent respectively.

From the above findings, we can see that multiple regression results suggest a different implication from that which we have arrived at from studying partial correlations. According to the results here in *PART II*, we find that instead of the three types of indicators being equal in strength, we observe that demographic indicators are relatively more viable than behavioral or objective-environmental ones in explaining residential satisfaction. In other words, it appears here that the Gansian perspective is the most valid in suggesting the importance of demographic data in the study of man-environment-relation when compared to Environmental Determinism and Chapin's perspective. The relatively low effect of marital status and children in household, which can be found towards the bottom of the list in both cases, can be explained by the fact that their individual effects are being accounted for by the two more influential demographic variables, namely, tenure and age, with which they are highly correlated.

However, it is important to note that objective and behavioral indicators should not be discarded because they

explain less variance than demographic ones. From Tables 11 and 12, we find that objective and behavioral indicators together explain 6.9 and 7.9 percent of variance respectively, accounting for almost the same proportion of variance that demographic indicators explain in Table 11 and accounting for more than that explained by demographic indicators in Table 12.

As we look at the total proportion of variance explained in our dependent variables by the three types of indicators, we find that the percentages are not particularly high. For dwelling satisfaction, our variables representing objective, demographic, and behavioral indicators explain a total of 15.6 percent of the variance, and 14.8 percent of that of neighborhood satisfaction. A major reason which can be ascribed to explain this relative small proportion of variance explained is that, as mentioned in the introductory chapter, we are leaving out another category of statistics as independent variables due to the scope of our present study, that being the subjective type of data. As we have already discussed in the Introduction, since we are aiming at analyzing the three theories represented by Environmental Determinism, Gans' and Chapin's arguments, we need to employ only objective, demographic, and behavioral statistics in the course of seeking indicators of residential satisfaction; although we have cited that individuals' subjective evaluation of other domain specific life areas are very much related to their

perception of satisfaction with their residential environment. The inclusion of subjective data in future studies should undoubtedly provide deeper insights into the issue of residential satisfaction. As our results in *PART II* have shown, objective, demographic, and behavioral variables explain about 15 percent of the total variance in the two levels of residential satisfaction, we can assume that by adding in subjective type of indicators together with the present three, we can expect an increase in the explanatory power as well as a more comprehensive picture of the subjective evaluation of environmental well-being.

CHAPTER IV

SUMMARY, CONCLUSION, RECOMMENDATIONS FOR FUTURE RESEARCH AND IMPLICATIONS FOR PLANNING

Summary and Conclusion

In this final chapter, we shall summarize the findings which we have obtained, as well as pinpoint the implications of our results for future research and the process of planning for people in the city.

We start off by citing that diversified theories and arguments have arisen in recent years with respect to the issue of man-environment relation: the study of how man interacts with the physical environment, particularly in our case, the urban man-made environment. Aiming at exploring this issue in the urban sociological frame of reference, we study three theoretical perspectives towards the man-environment issue represented by Environmental Determinism, the Gansian approach, and the arguments put forward by Chapin. We select three types of social statistics, namely, objective, demographic, and behavioral, respectively, to arrive at the appropriate indicators of residential satisfaction. By so doing, the three theoretical perspectives can be studied. For the dependent variables, we employ subjective measures of residential well-being: satisfaction with dwelling and with the neighborhood.

In the first part of our findings, we study each of the three theoretical perspectives individually by employing partial correlations to observe the relations between our independent variables of objective factors, demographic characteristics, and behavioral patterns, respectively, with our dependent variables of dwelling and neighborhood satisfaction. From these partial correlation results, we observe that from each type of the statistics, we can find indicators of either or both aspects of residential satisfaction.

Our methodology of specifying residential satisfaction in terms of the dwelling and the neighborhood levels bring about interesting results. We find that a variable can be an indicator of satisfaction within one level of residential environment but not necessarily be an indicator of the other level as well. While there are cases in which variables are found to be indicators of dwelling and neighborhood satisfaction, we also observe that some are not significantly related to either levels of satisfaction.

Specifically, for objective-environmental indicators, we find from our partials that house type significantly affects neighborhood satisfaction but not that with dwelling, while length of residence is found to be correlated with dwelling satisfaction but not with satisfaction in the neighborhood level. Density, contrary to many arguments advocated by deterministic theorists, is not related to the perception of either dwelling or neighborhood

satisfaction.

For demographic characteristics, tenure and age are found to be significantly correlated with both levels of satisfaction. We also note from our partials that the number of children in the household is related to one's evaluation of dwelling but not neighborhood satisfaction. Lastly, we find that marital status has no effect on either level of satisfaction.

From the study of behavioral variables, we observe that the amount of time spent on discretionary activities, contrary to Chapin's argument, is not related to either dwelling or neighborhood satisfaction. However, we do find that the social contact variable of neighboring to be an indicator of both levels of satisfaction; while socializing with friends is unrelated to either aspects of satisfaction.

Social contact variables are found to be more significant as intervening than as independent factors in our study. We have noted a general trend showing that the greater the degree of social interactions a person engages in, the less likely he would be affected by the objective environment or his own demographic characteristics in his perception of residential satisfaction.

According to these partial results, we argue that none of the above theoretical perspectives under study is totally valid in advocating a single type of indicator to approach the man-environment issue. Rather, we state that the multivariate concept applies here to our study in that

satisfaction with the residential environment is dependent upon a number of variables and that these factors interrelate in a complex manner such that no one single type of indicator is sufficient in depicting a comprehensive view of residential satisfaction. Environmental determinists, Gans, or Chapin are only partly correct in arguing that objective-environmental factors, demographic characteristics, or behavioral patterns are significant independent variables in the study of the man-environment relation.

We then step in the second part of our findings in which we employ multiple regression to investigate the comparative strength of our three theoretical perspectives in explaining both dwelling and neighborhood satisfaction. Furthermore, by analyzing multiple regression results, we are able to study the three perspectives as a whole in terms of their overall contribution to explaining our dependent variables, a task which could not be achieved by means of partial correlations as employed in *PART I* of our findings.

From *PART II*, we find that multiple regression results give us quite different insights into the three perspectives from partial correlations in *PART I*. We find that demographic indicators, rather than being equal in relevance with the other two types of indicators, are comparatively more viable than behavioral or objective ones in explaining residential satisfaction. Based on these results, we conclude that the Gansian perspective is

relatively more pertinent in approaching the man-environment-relation than Environmental Determinism or Chapin's perspective. However, the multivariate approach to the man-environment interface in a sense still holds in that even though demographic indicators are shown to explain more variance, objective and behavioral indicators together also account for approximately half of the total variance explained in both dwelling and neighborhood satisfaction. By depending only on demographic indicators, therefore, a comprehensive picture of man-environment-relation cannot be achieved.

Lastly, as we observe through multiple regression the overall explanatory power of the three theoretical perspectives together, we note that they explain a relatively low proportion of the total variance in both aspects of residential satisfaction, about 15 percent in each case. A major reason for this relatively small proportion of variance explained by our combined objective, demographic, and behavioral indicators, is that other categories of variables also could be significant as indicators of residential satisfaction. Specifically, we suggest the role of subjective indicators - measures of other domain specific satisfaction or attitudes, as possible determinants of satisfaction with the dwelling or the neighborhood. This leads to the question of future research and the implications of these findings for the process of planning for people in the city.

Recommendations for Future Research

From the above section, we have arrived at several conclusions which can initiate improvement in the study of the man-environment issue in the future. Our conclusion that demographic indicators being more viable than behavioral or objective ones should be taken as a starting point for future studies. As we have also argued, the multivariate approach still holds in that demographic indicators alone is not sufficient to depict a comprehensive picture of man-environment-relation, which is a complex interrelationship between different types of variables. In future research, there is much to be explored in such areas as the interrelationship between demographic and the other types of indicators such as objective, behavioral, as well as subjective ones. For example, research need to be conducted to investigate how behavioral variables intervene in the relationship between demographic characteristics and subjective indicators of well-being, or the role that objective-environmental variable play in this complex picture. Furthermore, as we have suggested before, subjective indicators should be employed as independent variables in future studies of man-environment-relation. Their effects can also be compared to demographic ones in the course of seeking for the most appropriate set of indicators of human well-being *vis-à-vis* the urban environment.

As for the study of residential satisfaction, we have cited that the specification of the area of concern is

important. Pinpointing the particular level of residential environment for study is crucial for the search of appropriate indicators of 'environmental well-being', as we find that a variable can be an indicator of satisfaction in one level of residential environment but not necessarily an indicator in another level as well.

In future research, more variables could be included alongside our present ones in the study of the man-environment interface according to modified arguments of the present three theoretical perspectives. By doing so, we can allow comparison of variables in order that we can address ourselves to questions such as these: Is the location of the dwelling a better indicator than house type is in the issue of residential mobility? Are factors pertaining to socio-economic status more relevant indicators of housing choice than life cycle characteristics? Or, are patterns of kinship ties more significant intervening variables of residential satisfaction than neighboring or friendship patterns? Or, does the engagement in certain types of activities bring about more favourable perception of the environment than other types of activities?

The point is that there are much left to be explored in terms of the scope of relevance of these theoretical perspectives put forward by the Environmental Determinists, Gans, and Chapin in approaching the issue of man-environment-relation. Although as we have stated, the Gansian perspective is comparatively more viable than the

other two, there are still areas worth exploring within each of these perspectives, since the overall proportion of variance explained which we obtain here is relatively low. Further investigation of these theoretical perspectives from other different angles should be fruitful in the course of seeking for an appropriate model for the study of man-environment-relation.

Implications for Planning

Several implications for the planning of residential environments can be cited from the results of the present study. The 'deterministic ideology', or, the notion that environmental designers and planners can directly determine individuals' well-being through planned environments should no longer be nurtured, since we find that not every objective-environmental variable is necessarily an indicator of residential well-being. However, the effects of environmental factors should not be totally ignored as we cite that house type as well as length of residence can be treated as indicator for neighborhood or dwelling satisfaction respectively.

Similarly, planners should not depend solely on demographic or behavioral data alone as inputs during the planning process for we find that not every variable from these two categories of statistics which we study is an indicator of residential satisfaction, even demographic variables, which we cite as more viable than the other two

types. As our low multiple regression scores suggest, these three types of indicators are not sufficient to explain residential well-being; in addition, planners should take into account subjective indicators as important inputs during the planning process.

Instead of being preoccupied with how each type of factors would affect well-being, the planning practitioner should turn to study how he can plan the physical environment to optimize residential satisfaction, given the particular demographic characteristics and behavioral patterns of the group he has in mind. Actual research on activity patterns, for example, time budgets, types of activities, and the location where the activities take place, are all useful data. However, information on behavior alone is not sufficient for the planning process. Behavioral data in the context of demographic and objective-environmental factors are more meaningful and important information. Knowing the demographic characteristics of the target group, the planner can then pick up cues as to what kind of behavioral data he needs to gather. For example, if the group is composed of young families with children, an important behavioral consideration will be children playing. Having this behavioral concept in mind, he can relate to the particular environmental concern, the questions of where will the playing take place? or, how much space is needed?, or, what kind of environmental surrounding is desirable?

And for the evaluation process, the collection of subjective data can be of particular value. If the goal of the planning process is one of promoting the well-being of the individuals being considered, the most direct way to measure the success or failure of the plan is to go to the people, obtaining their evaluation of the environments with which they experience and interact. Such evaluations can be multi-faceted, ranging from attitudes towards the physical aspects of the residential environment, to aspects such as management or neighboring.

The specifications of the particular level of concern should be noted during both the planning and the evaluation process. As our results have shown, an indicator can be viable in one level of the environment but not necessarily so in another. Pinpointing a particular problem in a specified level of the environment can enable the implementation of more specific and concrete ameliorations.

The basic implication here is that, planning for people is a multi-dimensional concept. Approaching this problem unidimensionally can be a barrier in the creation of optimum environments for individuals. Viewing and designing the physical environment as an opportunity for desired activities, with reference to demographic and behavioral considerations, and evaluating in the context of actual subjective perceptions of the specific individuals involved could mean a shift from a limited unidimensional to a more comprehensive approach to planning for people in the city.

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B30240